ROCKY FLATS

A proud legacy, a new beginning

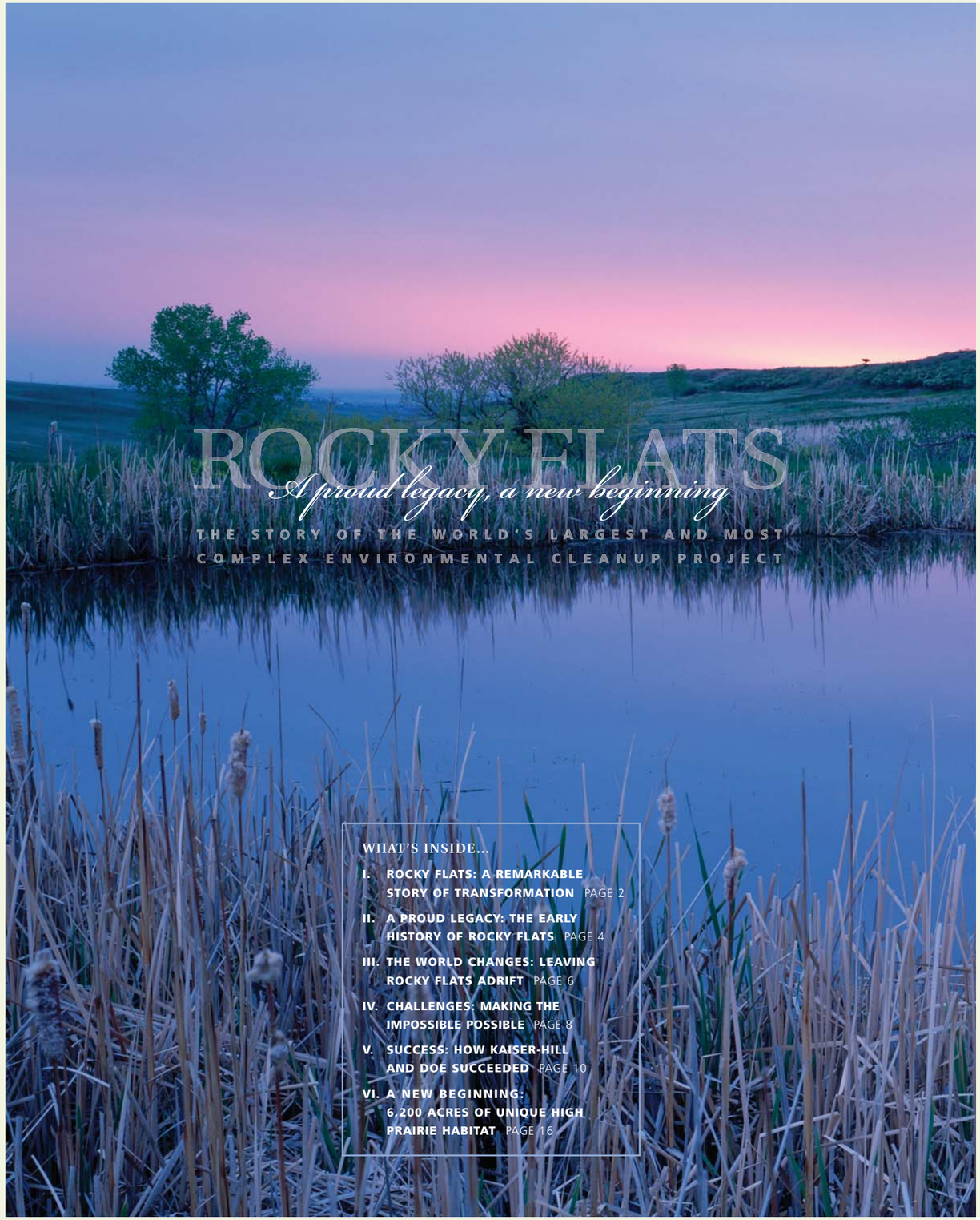
THE STORY OF THE WORLD'S LARGEST AND MOST COMPLEX ENVIRONMENTAL CLEANUP PROJECT

THE CLOSURE AND TRANSFORMATION OF ROCKY FLATS

1995 – 2005

KAISER•HILL COMPANY

DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA



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WHAT'S INSIDE...

MESSAGE FROM THE MANAGER

The Rocky Flats closure has demonstrated the true power of partnership. Through cooperation the work of many ordinary individuals has produced an outcome that is truly extraordinary. There are lessons for us all in the story of the Rocky Flats Closure.

FRAZER R. LOCKHART
MANAGER, DEPARTMENT OF ENERGY
ROCKY FLATS PROJECT OFFICE

MESSAGE FROM THE PRESIDENT

We are pleased to present the story of Rocky Flats—from conception to closure. What a remarkable journey it has been. The closure of Rocky Flats represents the best of the American spirit — determination, hard work, partnership, innovation and a desire to be good stewards of the land. We hope you enjoy this wonderful story.

NANCY R. TUOR
PRESIDENT AND CHIEF EXECUTIVE OFFICER
KAISER-HILL COMPANY, LLC


THE DENVER POST HOME EDITION

THERE'S GOOD NEWS TODAY

U.S. TO BUILD $45 MILLION A-PLANT NEAR DENVER

Paratroopers Fill the Sky in Surprise Attack on the Reds

Work to Start in April on Site North of Arvada

Day Fixed Is Closing Of Bay, 15 Others

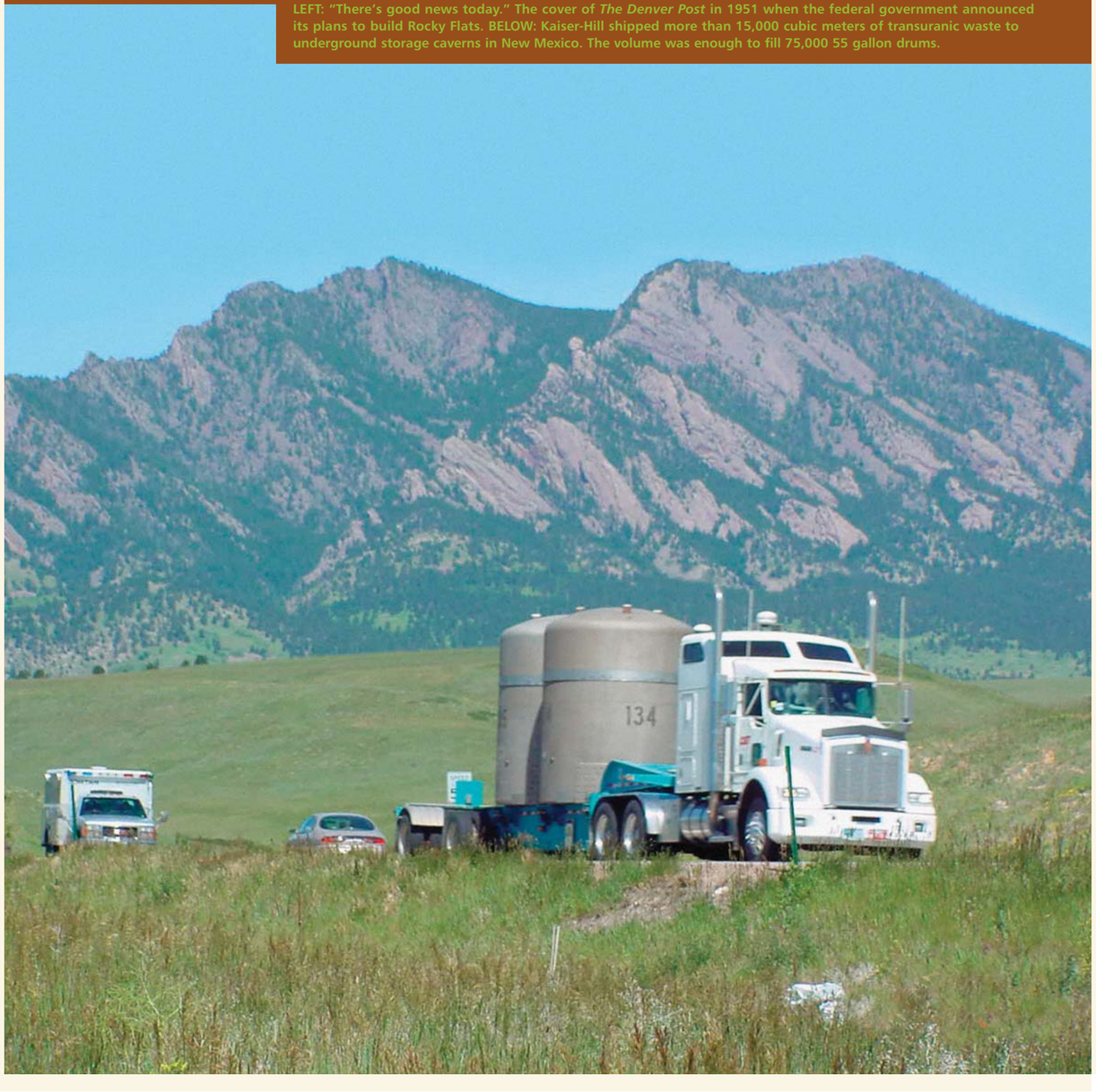
20,000 Reds Flee Tank Paratroopers

Plane With 53 Aboard Missing

ROCKY FLATS

A remarkable story of transformation

LEFT: "There's good news today." The cover of *The Denver Post* in 1951 when the federal government announced its plans to build Rocky Flats. BELOW: Kaiser-Hill shipped more than 15,000 cubic meters of transuranic waste to underground storage caverns in New Mexico. The volume was enough to fill 75,000 55 gallon drums.



The first major environmental nuclear cleanup in the world is complete.

At Rocky Flats, 16 miles west of Denver, all of the radioactive waste has been shipped off-site. Workers are reporting to jobs in other places. Rocky Flats has come full circle from its proud legacy as a key part of our national defense system to a new beginning as a wildlife refuge.

There are many lessons in this unique story, such as building trust through transparency, engaging a workforce through leadership, and solving unprecedented challenges through technological innovation—all while working under new models of government contracting.

The history of Rocky Flats includes some of the most significant challenges the world has known: tearing down 800 buildings, many highly contaminated; processing 100 tons of high-content plutonium residue waste; and shipping massive quantities of radioactive waste, enough to fill a string of rail cars 100 miles long.

This is the story of that remarkable transformation.

Ten years ago, Kaiser-Hill Company, LLC—a joint venture of two of the world's leading environmental and engineering firms, CH2M-HILL and ICF Kaiser (now Kaiser Holdings)—took on the enormous task of cleaning up and closing down one of the most contaminated sites in the country.

In October 2005, what many scientists, politicians and ordinary citizens thought impossible, became fact. The first major and most complex nuclear cleanup project in the world had been accomplished.

The history of Rocky Flats from the 1950s into the mid-1980s had been a proud one. As the world recovered from the second of the great global wars and the power struggle between the United States and Soviet Union teetered on a frighteningly unstable balance point, Rocky Flats became a linchpin of America's defense system. Every nuclear weapon in the current U.S. arsenal contains plutonium triggers produced at Rocky Flats.

But there was a price to peace—radioactive and hazardous waste had been accumulating since operations began. By the late 1980s, when the public started learning more about Rocky Flats, it had become one of the country's largest liabilities.

In 1989, the FBI raided the facility in response to safety and environmental issues and Rocky Flats was shut down. The period from 1989 to 1992 was filled with uncertainty while attempts were made to restart some of the plutonium operations at Rocky Flats. By 1994, DOE went in a new direction and embarked on a mission to begin the cleanup process.

In the mid-90s, DOE and Kaiser-Hill became the team that would accomplish the seemingly impossible.

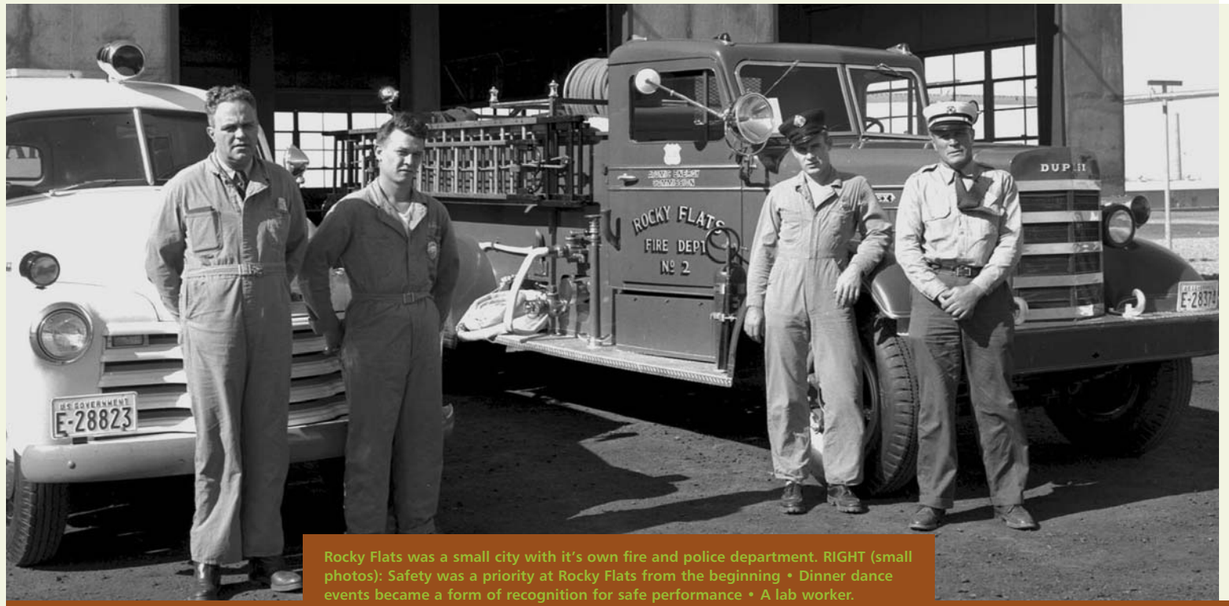
In addition, Kaiser-Hill assembled a team of world-class experts from companies such as Westinghouse, Babcock and Wilcox, Morrison-Knudsen, British Nuclear Fuels, Dyncorp, Wackenhut, Jacobs Engineering and countless others to help tackle the problem.

The challenges that DOE and Kaiser-Hill faced in tearing down buildings, shipping waste and restoring the land were enormous. Rocky Flats included a 385-acre industrial site containing more than 800 structures, with five that were among the most radioactively contaminated buildings in the country. There were 13 "infinity rooms" that had been sealed and abandoned. They were so highly contaminated that the contamination couldn't be measured by radiation detection equipment used at Rocky Flats 20 to 30 years before. Those and a long list of other challenges called for an entirely new approach.

"It was like the challenge of going to the moon—no one knew how to do it when we started," said Kaiser-Hill CEO, Nancy Tuor.

The results speak for themselves. In October 2005, Kaiser-Hill announced completion of the cleanup work. Remarkably, this work was finished more than 60 years earlier and $30 billion less than DOE's 1995 estimates. Furthermore, the work was accomplished with safety records among the best in the DOE's complex of nuclear facilities—far exceeding those of other seemingly less dangerous occupations.

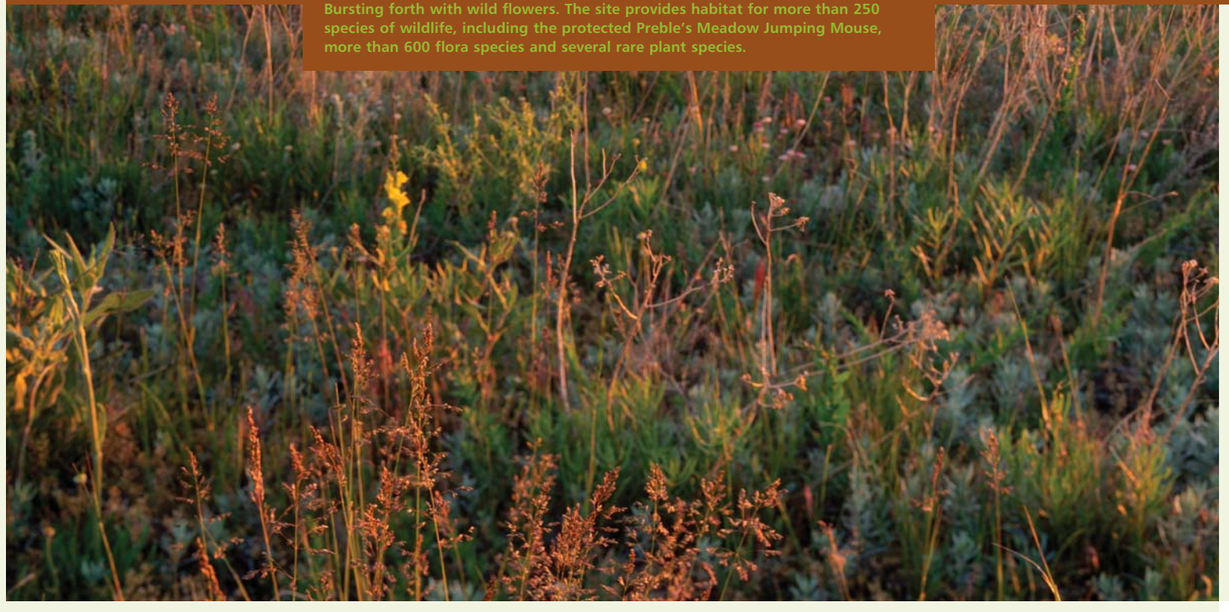
Sixteen miles from the state capitol in Denver, the site that once posed a risk to the approximately three million area residents lies poised for its new beginning as a wildlife refuge—6,200 acres of unique high prairie habitat returned to the American landscape for the use of generations to come.



Rocky Flats was a small city with it's own fire and police department. RIGHT (small photos): Safety was a priority at Rocky Flats from the beginning • Dinner dance events became a form of recognition for safe performance • A lab worker.

A PROUD LEGACY

The early history of Rocky Flats



Bursting forth with wild flowers. The site provides habitat for more than 250 species of wildlife, including the protected Preble's Meadow Jumping Mouse, more than 600 flora species and several rare plant species.

On March 23, 1951, against a backdrop of increasingly strained Cold War

relationships between the U.S. and the Soviet block and a new phenomenon called the "arms race," the Atomic Energy Commission announced that the nation was building a top-secret nuclear weapons plant in a rocky, but flat, ranching area in Jefferson County, Colorado. *The Denver Post* heralded the decision with a front-page headline: "There's good news today." Within one year, Rocky Flats was producing nuclear weapons components.

COLD WAR WARRIORS

It was a time of great pride for the workers at Rocky Flats. Military personnel were on the front lines, but behind the scenes, at places like Rocky Flats, thousands of workers were building the nuclear deterrent. Rocky Flats workers teamed with national laboratories to test new weapons designs, employed the use of new and exotic materials in weapons components, worked to make nuclear weapons more reliable and to create smaller tactical nuclear weapons. They helped keep U.S. weapons state-of-the-art. They were Cold War Warriors, helping to protect America on their own unique battlefield.

In 1957, the Soviet Union shocked the world by launching Sputnik into space, adding a new dimension to the arms race and making Rocky Flats a critical linchpin in the nation's nuclear deterrent defense. At "the Flats," scientists and production workers took plutonium and turned it into one of the most highly engineered devices ever made by man—plutonium pits, or triggers, for nuclear bombs. A trigger is a hollow 360° sphere that varies in size from a grapefruit to a soccer ball. Rocky Flats made some 70,000 triggers from 1953 to 1989—about five triggers a day.

It was a time of great fear among ordinary Americans—most people over 50 remember "bomb drills" at school and most communities had designated bomb shelters. As *The Denver Post* headline clearly noted, Rocky Flats was a symbol of positive action—America was up and running, making ready with the most powerful and modern defensive weapons known.

In the 35-plus years of fast-and-furious weapons production, several generations of many families worked there. The Flats became a small city with a workforce of 5,000. It had its own fire department, cafeteria, auditoriums and gas stations.

"They're the best and I will forever be indebted to them. I think the people of Colorado are indebted to them because of their hard work and commitment to safely clean up Rocky Flats by 2006."

– U.S. SENATOR WAYNE ALLARD, SPEAKING OF THE ROCKY FLATS WORKFORCE

THE WORLD CHANGES

Leaving Rocky Flats adrift

LEFT: Deer in Rocky Flats buffer zone. BELOW: The 1,800 square foot X-Y retriever storage vault was used to store and transport containers of plutonium throughout the facility via an interconnected chainveyor system. Dismantling the structure was a several year project. Complete removal of the vault was finished in 2004.

By 1989, four years after Mikhail Gorbachev assumed power in Moscow, the collapsing Soviet economy and the major military concessions made to shore it up finally culminated in an announcement to the world by Gorbachev that "the postwar period is over." George H.W. Bush's administration in Washington agreed that the world had "clearly outgrown" the post-1945 superpower "clash."

Rocky Flats found itself at the crossroads of those historical events and movements.

In 1989, the FBI raided Rocky Flats for alleged violations of environmental laws. By the end of the year, all nuclear operations were suspended to address environmental and safety concerns. Rockwell International, which operated the plant from 1975 to 1989, eventually paid what was then the largest environmental fine in U.S. history—$18 million.

"Federal agents raid Rocky Flats"
"Illegal storage/disposal of hazardous waste alleged"
"Romer angry state kept in dark about probe"

– HEADLINES FROM THE DENVER POST, JUNE 1989

The resulting shutdown left large quantities of dangerous plutonium liquids in tanks and plutonium in gloveboxes and makeshift packaging. Essentially, all processes were stopped in midstream, as if operations would resume shortly. But weeks became years and eventually the DOE determined that operations at Rocky Flats would never resume. In 1994, DOE reported that Rocky Flats had five of the 10 most dangerous facilities in the DOE complex, including Building 771, the number one most vulnerable facility. This building would come to be termed by the news media as "the most dangerous building in America."

UNTOUCHED AND UNSAFE

So there it sat. More than 21 tons of weapons-grade nuclear materials, much of it improperly stored. More than 100 tons of high-content plutonium wastes called residues, with no way to treat them, no way to package them and no place to send them. The cost of environmental cleanup, an increasingly high priority because of risks to the residents of the Denver metropolitan area, was estimated at more than $36 billion and was expected to take 70 years.

"This area, which once produced weapons and helped win the Cold War, and is now a massive cleanup project, will continue to produce wildlife habitat and open space opportunities for generations to come.

– U.S. CONGRESSMAN MARK UDALL

No doubt the Rocky Flats nuclear weapons plant helped America win the Cold War, but the real challenge in the last decade of the 20th century would be how to turn a facility that had become a national liability into a national asset.

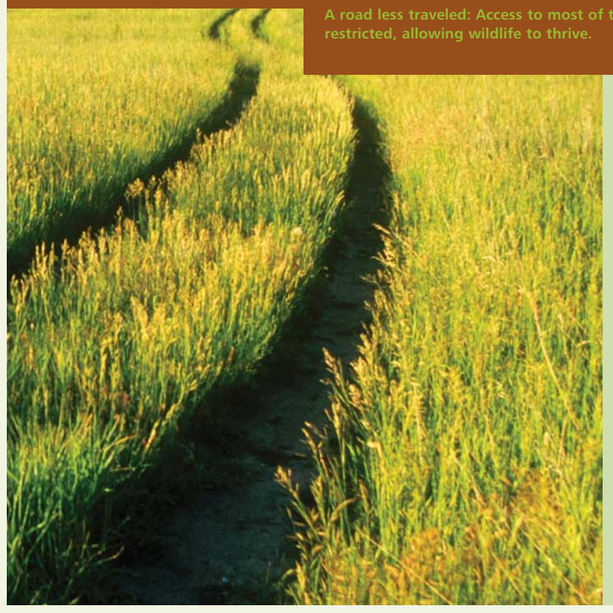
Safer. Faster. Smarter.

In 2004, Kaiser-Hill shipped its heaviest piece of waste ever, a 150-ton Sutton press removed from a former metalworking facility that was demolished in 2003. Workers coated the entire press with a spray-on polyurethane coating similar to the material used to line pickup beds. A specially-designed trailer was constructed to ship the press to Envirocare. The trailer alone contained 80 wheels on 10 eight-tire dolly sets.

The closure of Rocky Flats didn't just involve dismantling buildings and cleaning up the environment. Massive volumes of earth were moved to restore the land to its pre-Rocky Flats contours.

CHALLENGES

Making the impossible possible



A road less traveled: Access to most of the Rocky Flats buffer zone has been restricted, allowing wildlife to thrive.

CHALLENGES AT ROCKY FLATS:

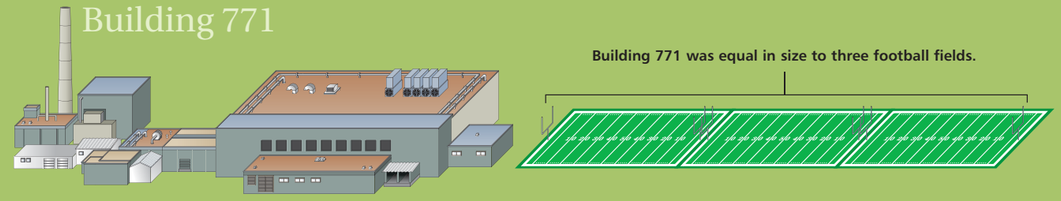
- **21 tons** of improperly stored weapons-grade nuclear materials.
- **5 of the most highly-contaminated facilities** in the country, including two that topped a list of the government's highest post-weapons production vulnerabilities and three others in the top ten.
- More than **360 potentially contaminated sites.**
- **100 tons** of high-content plutonium residue waste with no treatment or disposal path.
- **13 infinity rooms** that had been sealed and abandoned because they were so contaminated that the equipment of the time couldn't measure them, and that no one yet knew how to safely open and decontaminate.
- More than **650,000 cubic meters** of radioactive waste.
- **Millions of classified items** and excess property.
- An ongoing taxpayer liability of **$500 million annually.**
- A culture of **strained relationships,** community mistrust and lack of leadership.

The dramatic changes in national priorities of the 1980s resulted in new objectives

for the DOE and, consequently, a new way of doing business as the new century approached. DOE's contract reform initiative, implemented in 1994, emphasized competition and the development of results-oriented performance criteria and measures. The Rocky Flats contract was put out for bid and awarded to Kaiser-Hill Company, LLC, which was specifically established to address the enormous environmental, waste management and special nuclear materials risk reduction challenges posed by Rocky Flats.

But the physical size was far less of an issue than the hurdles related to disposal of the products and waste manufactured there. Handling many of these materials required wearing protective equipment and following strict procedures to avoid the release of contamination. The removal of heavily contaminated buildings was a formidable obstacle. Building 771 was certainly dangerous, but other major buildings presented huge challenges. In 1969, a fire in

Building 771



Building 771 housed a complex plutonium recovery process after triggers were made. It was dismantled in 2005 without incident.

Between 1995 and 2000, Kaiser-Hill reduced immediate risk. During that time, they also began looking at the possibility of an accelerated closure. It would mean removal of a frightening risk many decades earlier than anticipated and huge savings for the American taxpayer. But as DOE, Kaiser-Hill, and the regulators began discussing acceleration, their first priority remained the integrity of the cleanup.

THE CHALLENGE

One can only understand the complexity and scope of Rocky Flats by knowing what Kaiser-Hill inherited when it took over in 1995.

By the time Kaiser-Hill assumed control of the project, Rocky Flats was the site of 800 buildings on a 385-acre industrial area surrounded by 6,200 acres of undeveloped land as a buffer zone. The site had two wastewater treatment plants, laboratories, water, power, steam and nitrogen facilities, the largest private security force

Building 776/777, number two on the high risk list, had so contaminated the building that Kaiser-Hill would have to seal every surface before taking it down. Building 707 was similarly challenging due to the extent of contamination caused by fine particles of plutonium, called "holdup." Building 371 was a building of "canyons" in which processes were remotely controlled because of the high levels of contamination. It, too, would be extremely difficult to dismantle safely. And, Kaiser-Hill had to deal with such problems from the past as a pad called 903, where barrels of plutonium-based waste oil had been stored and had leaked contaminants into the soil. An earlier cleanup attempt by another contractor had released contaminants into the air, to settle southeast of the 903 area. There were many, many other challenges, not the least of which was to forge agreements with other states where wastes would go, and then develop the waste packaging and shipping protocols to meet rigorous transportation and acceptance criteria.

SUCCESS

How Kaiser-Hill and DOE succeeded

BELOW: Work crews install a geosynthetic liner as part of remediation activities at a landfill north of the site's industrial area. The environmental liner consists of an impermeable geosynthetic layer covered by alternating layers of soil and rock. The landfill encompasses 24-acres.

The monumental task of cleaning up and closing one of the most contaminated sites

in the country required a new business approach. Safety was paramount. Kaiser-Hill knew early on, that unless work could be performed safely, it wouldn't be performed at all. Building trust and fully engaging the work force, the federal and state regulators and multiple public and private stakeholders, was critical.

Technical innovation was needed to solve what many viewed as insurmountable cleanup problems. And a new era of openness and transparency that allowed stakeholders to be part of the decision-making process needed to be ushered in.

The following initiatives were key to the DOE's and Kaiser-Hill's success in closing Rocky Flats:

INNOVATIVE DOE CONTRACTING STRATEGIES

When DOE developed new contracting models, Kaiser-Hill was there. As a result of DOE's contract reform initiative in 1994, Kaiser-Hill won the first of DOE's new contracting models in 1995. In 2000, Kaiser-Hill was awarded the agency's first Closure Contract.

Unlike other DOE contracts at the time, the 1995 Integrated Management Contract awarded to Kaiser-Hill was performance-based—the contractor could earn payment only by completing specific, measurable units of work. DOE contracts up to that time were known as Management and Operations contracts that rewarded contractors for general management of a site. Payment was mostly based on subjective performance evaluation.

Under the new pay-for-performance model, Kaiser-Hill got Rocky Flats working anew. Plutonium solutions stored in leak-prone tanks and piping systems were drained and stabilized. Drums of radioactive and chemical waste such as uranium and cyanide were unearthed from burial trenches, safely packaged and disposed of. Scientists started analyzing the massive inventory of plutonium residues and developed strategies to stabilize, package and ship this material. The first steps were taken to deactivate, decommission and decontaminate facilities such as Building 779, which was the first of Rocky Flats' five large plutonium-contaminated buildings to be demolished.

During the course of the five-year contract, Kaiser-Hill also began questioning why it would take more than a half of a century and tens of billions of dollars to ultimately clean up and close the site. The company developed a series of strategic planning models and specific project plans which verified that closure could be accelerated by decades at a significantly reduced cost.

THE ROCKY FLATS CLOSURE CONTRACT

Based on its record of getting work done and developing an aggressive yet credible plan to clean up and close Rocky Flats by December, 2006, Kaiser-Hill was awarded the Rocky Flats Closure Contract in 2000.

The contract was innovative in a number of ways. There were strong financial incentives for minimizing cost and severe penalties for unsafe performance. The contract authorized Kaiser-Hill to perform the entire scope of the closure project, rather than requiring DOE approval each year for annual work plans. This allowed Kaiser-Hill flexibility to maximize efficiencies as work progressed. As an example, money saved from early innovations allowed Kaiser-Hill to accelerate work originally scheduled to occur during the final years of closure.

A STREAMLINED REGULATORY FRAMEWORK

Kaiser-Hill supported DOE with the development of the Rocky Flats Cleanup Agreement when it assumed management of the Rocky Flats site in 1995. When it was signed by the state of Colorado, the U.S. Environmental Protection Agency and the DOE in 1996, it created a new regulatory framework for planning and executing work. The agreement outlined a unified vision of the Rocky Flats end-state, created clear roles and responsibilities, set site-wide standards and streamlined the decision-making process. A hallmark of this partnership was its consultative process. Regulators worked in offices on site, allowing daily interaction as complex issues were discussed and work plans were developed. Working together, the public/private partnership committed to move waste, not piles of paper.

Workers carefully vacuum leftover residue from concrete shaving. The vacuum is specially designed to contain radioactive dust and debris. Workers shaved small areas of concrete at a time and used grid lines to guide progress. INSET PHOTO: For more deep-seated contamination, decontamination efforts were more aggressive.

"Every single worker at Rocky Flats should be commended as part of a great achievement. A job that many thought couldn't be accomplished—at any price—is going to be done on budget, on time. These exceptional, dedicated, experienced people will carry forward a noble legacy to their next job and throughout their careers."

– U.S. CONGRESSMAN BOB BEAUPREZ

OVERCOMING TECHNICAL CHALLENGES

Some of the problems at Rocky Flats seemed insurmountable. There were no previous planning models or solutions to some of the site's most difficult problems. No one in DOE had faced 100 tons of plutonium residues. No one had packaged plutonium for long-term storage. No one had dealt with rooms containing lethal levels of airborne radioactivity, nor encountered the extent of plutonium contamination that was found at Rocky Flats. No one had dismantled plutonium facilities the size and complexity of those at Rocky Flats. If that wasn't enough, the site harbored some wastes called "orphans" because there was no known treatment or disposal facility.

When it came to cleaning up Rocky Flats, the word "no" and "can't be done" were not in the workers' vocabulary. They overcame these potential roadblocks through determination and by attempting to approach problems with new perspectives.

An aerial photograph of Rocky Flats taken today, compared to one taken in 1995, will show an 800-building complex erased from the site. But solving these difficult problems is what happened behind the scenes and is truly the remarkable legacy of this cleanup.

INNOVATIVE USE OF TECHNOLOGY

The DOE and Kaiser-Hill found that they didn't need to spend millions of dollars on research and development to solve some of the site's problems. Instead, the answers

ENGAGING THE WORKFORCE

Kaiser-Hill inherited a Rocky Flats work force that, in 1995, was demoralized from the termination of the weapons mission and the uncertain future of the site.

To refocus workers from weapons production to cleanup and closure, Kaiser-Hill established a close relationship with the site's employees, giving them a beneficial stake in the safe and accelerated completion of the project. Kaiser-Hill shared nearly 20 percent of the company's profits with employees and provided spot incentives for outstanding performance. Workers performing hands-on work became partners in all stages of work planning, creating ownership and capitalizing on their unique institutional knowledge.

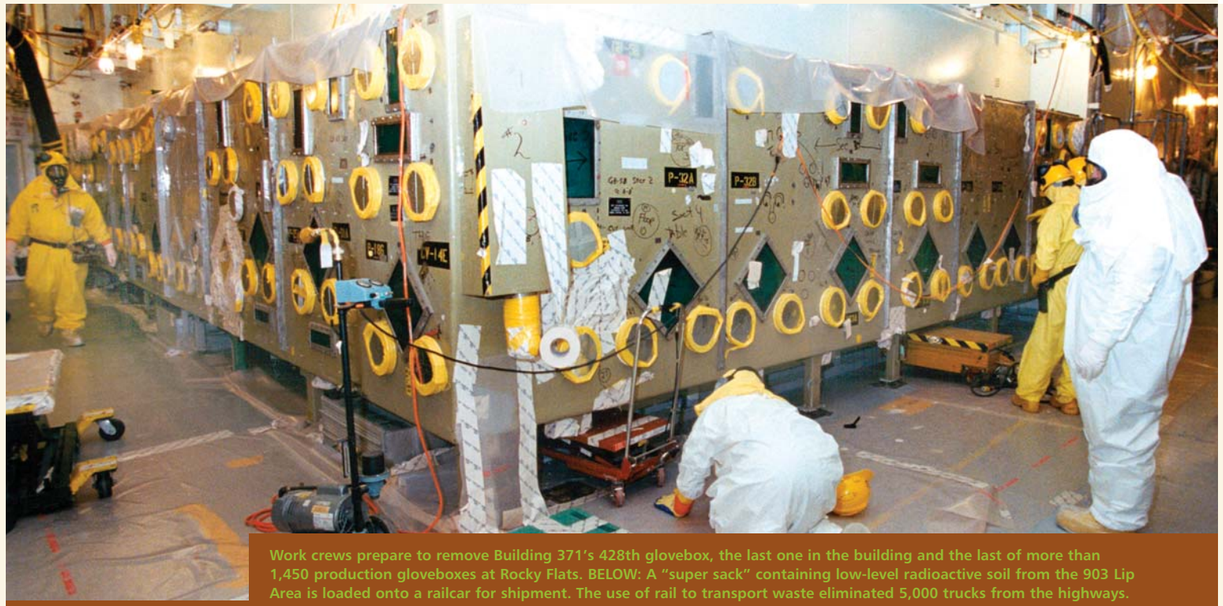
Kaiser-Hill changed the symbols, tearing down buildings on its first day on the job and making it clear that a new era had begun. Soon, the Rocky Flats work force embraced cleanup and closure as patriotically and earnestly as they performed weapons production work.

As a result, these Cold War heroes who never missed a production deadline gained a reputation as world-class decommissioning workers. Worker innovations in finding safer and more cost-effective solutions came in rapid succession. Safety dramatically improved as workers became more involved in planning the work and identifying hazards.

As cleanup progressed and closure became more of a reality, Kaiser-Hill recognized that the success of safe operations depended on employees who were focused on their work, rather than what would happen to them when it was over. The company created a successful workforce transition program to help workers prepare for life after Rocky Flats, greatly reducing anxiety about the future.

A LITTLE NUCLEAR LANGUAGE: DECONTAMINATION AND DECOMMISSIONING In the nuclear industry, Decontamination and Decommissioning (D&D) is essentially everything needed to take a shutdown facility to bare walls, floors and ceilings. At Rocky Flats, D&D meant removing systems, decontaminating equipment of radioactive and hazardous materials to the greatest extent possible, taking down buildings and packaging and shipping all the material as waste—all while protecting workers and the environment.

Laying the seeds for a new beginning: Following the demolition of building 881, 151,000 cubic yards of soil were used to rebuild the hillside. The site was contoured to control erosion and seeded with native grasses. INSET PHOTO: The peaks of the Rocky Mountain National Park loom over the Present Landfill project.



Work crews prepare to remove Building 371's 428th glovebox, the last one in the building and the last of more than 1,450 production gloveboxes at Rocky Flats. BELOW: A "super sack" containing low-level radioactive soil from the 903 Lip Area is loaded onto a railcar for shipment. The use of rail to transport waste eliminated 5,000 trucks from the highways.

often involved adapting existing technology to nuclear cleanup in ways never attempted before.

Workers adapted a spray-on coating, the type used to protect pickup truck beds, to become the over-the-road packaging material for large pieces of contaminated equipment. It eliminated the need to cut up equipment into pieces that fit inside waste containers and the hazards this work presented.

"The Department of Energy and its prime contractor, Kaiser-Hill, have done an excellent job in remediating Rocky Flats and reducing the extensive risks that the site posed. It is easy to lose sight of the daunting task they have performed."

– ROCKY FLATS COALITION OF LOCAL GOVERNMENTS

Workers decontaminating Rocky Flats' 1,457 gloveboxes—stainless steel containers with gloves and viewing ports where most nuclear operations were performed—developed a low-cost, low-tech chemical decontamination solution that cleaned deeply contaminated surfaces to levels not imaginable before. This allowed the company to dispose of gloveboxes as low-level radioactive waste, the least difficult to package and ship.

NEW ORLEANS REAPS BENEFIT OF EMPLOYEE'S QUICK THINKING

Quick thinking and persistence, a trait shared by many Rocky Flats employees, helped in New Orleans' effort to urgently repair damaged levees. An employee watching news accounts recognized that 24,000-pound-capacity "super sacks" used at Rocky Flats would get the job done faster than the 3,000-pound bags New Orleans officials were using. He persisted until he reached the right officials, who seized upon his idea. He was later awarded a special commendation from the chief of the U.S. Army Corps of Engineers.

"DOE's Rocky Flats site in Colorado should be used as a model for all cleanup programs."

– SPENCER ABRAHAM, FORMER ENERGY SECRETARY, OCTOBER 17, 2002

There are countless other examples of employees finding a new use for an off-the-shelf product. Concrete shaving equipment used to level uneven concrete or smooth damaged concrete highways was adapted to shave layers of contamination from structural concrete in plutonium-contaminated facilities. Wireless fire and smoke alarm systems allowed workers to disconnect the power to a building prior to dismantling, eliminating the potential for electric shock when they removed building components.

These ideas saved millions of dollars at Rocky Flats. Many have been adopted by other DOE sites, extending the savings. DOE's office of Science and Technology played a key role in supporting workers' ideas.

PARTNERING WITH THE COMMUNITY

It is significant that in its list of strategies for doing the impossible, Kaiser-Hill and DOE insisted that it would create a transparent cleanup. Because of the unique history of Rocky Flats and skepticism in some quarters about whether the cleanup could be done safely, if at all, management elected to go the extra distance in making information widely available.

Kaiser-Hill and DOE created a new era of openness with citizens, local elected officials and other stakeholders by routinely involving them in the details of site cleanup planning and execution. Public understanding of the cleanup decision allowed issues to be resolved early and created public support for Rocky Flats' goals.

Two of the key community liaison groups were the Rocky Flats Coalition of Local Governments (RFCLOG) and the Rocky Flats Citizens Advisory Board (RFCAB). Together, they provided invaluable insight into community concerns.

RFCLOG is comprised of the seven local governments that border Rocky Flats: Boulder County, Jefferson County, Arvada, Boulder, City and County of Broomfield, Westminster and Superior. The Coalition has been involved in an extensive effort to independently review Rocky Flats' cleanup work. Several reviews have been done over the years, focusing on various elements of cleanup, including groundwater, pond configuration and soil sampling.

RFCAB was chartered by DOE in 1993 to provide independent, community-based recommendations on the cleanup. The Board is comprised of 15-20 individuals representing a diversity of views and interests from the communities around Rocky Flats.

SAFETY

The most important aspect of the accelerated Rocky Flats cleanup and closure is that it was performed safely. When Kaiser-Hill arrived in 1995, the accident rate at Rocky Flats was 7.6 per 200,000 work hours, a standard measure used by industry. In 2004, the rate was below 1 and ranked among the best in DOE operations.

Kaiser-Hill achieved improved safety while performing some of the most dangerous work on earth by listening to employees, engaging the site unions and working tirelessly to identify hazards and implement controls.

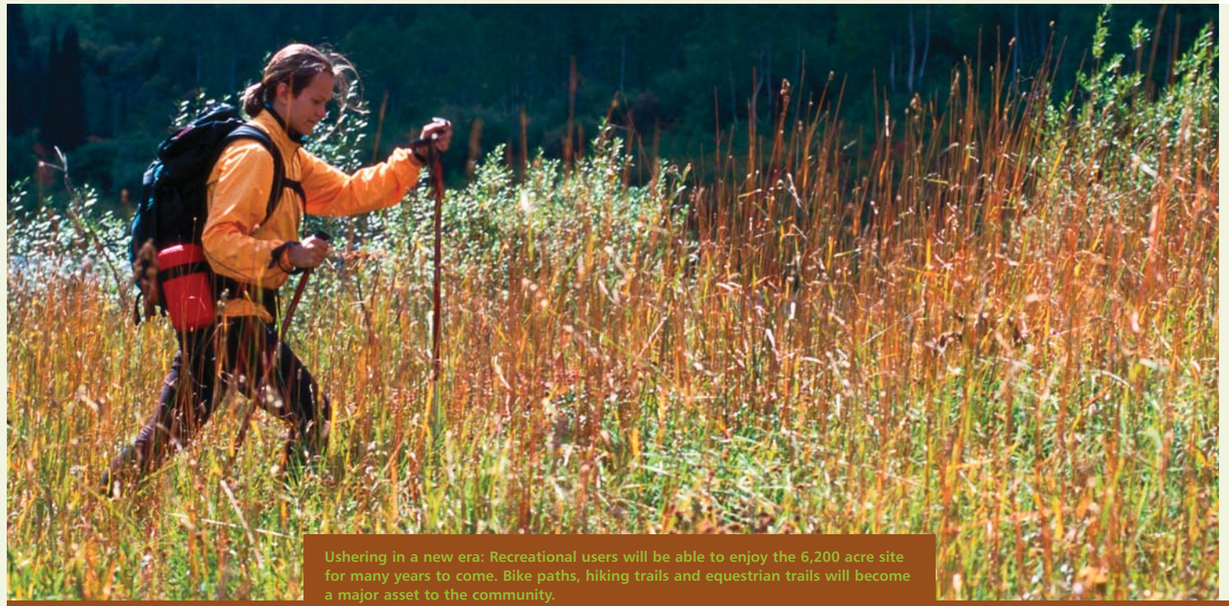
KAISER-HILL MOVED MOUNTAINS OF WASTE

Rocky Flats shipped more than 600,000 cubic meters of radioactive waste from 1995 until closure in 2005. The waste would fill 600 Olympic-sized swimming pools.

SAFETY FIRST

By 2005, the Rocky Flats recordable injury rate was below 1. By comparison, the U.S. construction industry averaged more than 7.6 and the newspaper industry's recordable injury rate was 4.2. Working at Rocky Flats under Kaiser-Hill's management had become safer than building a house or working for a local newspaper. The project proved that work of this magnitude and complexity could be accomplished safely, quickly and cost-efficiently.

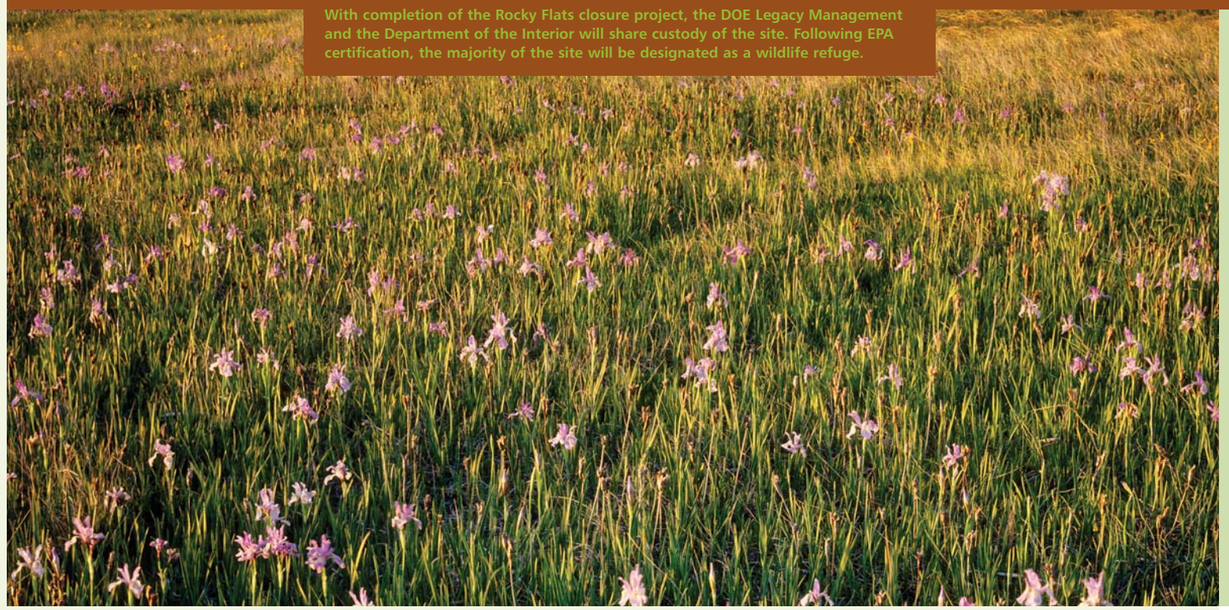
Often, Kaiser-Hill worked on parallel paths to find the safest way to get the job done. The company invested in robotic equipment to help operators cut up and package highly radioactive gloveboxes. At the same time, it explored incorporating plasma arc cutting and chemical decontamination, which ultimately made robotics unnecessary. As workers were performing the high-hazard task of removing lead, a material used to shield radiation, from gloveboxes, Kaiser-Hill campaigned to receive approval to dispose of the gloveboxes with the lead shielding in-tact. This solution would eliminate hundreds of hours of worker exposure to radiation and other health hazards. A "Top-to-Bottom" review of cleanup initiatives in the DOE Complex hailed Kaiser-Hill's advocacy for safety as "taking Integrated Safety Management" to the next level.



Ushering in a new era: Recreational users will be able to enjoy the 6,200 acre site for many years to come. Bike paths, hiking trails and equestrian trails will become a major asset to the community.

A NEW BEGINNING

6,200 acres of unique high prairie habitat



With completion of the Rocky Flats closure project, the DOE Legacy Management and the Department of the Interior will share custody of the site. Following EPA certification, the majority of the site will be designated as a wildlife refuge.

One of the most remarkable legacies of Rocky Flats is how the DOE and Kaiser-Hill,

working in partnership with its employees, the state of Colorado, the EPA, local communities and Colorado's congressional delegation, changed the site from a national liability to a community asset. With the cleanup completed, the site will become a high prairie habitat for citizens to enjoy for years to come. It will be managed by the U.S. Fish and Wildlife Service.

The accomplishment transcends the mere disposal of waste, even the world's most dangerous waste. It is a lesson in the extraordinary possibilities of trust coupled with innovative thinking—from a new way of contracting between government and private companies, through a cooperative approach to regulation, to new uses of existing technology, to exceptional efforts in employee motivation. It also is an illustration of community collaboration at its best. But perhaps most importantly, it is a lesson in American history and how the difficult and often frightening realities of nuclear weapons production can give way to new beginnings. The Rocky Flats journey has come full circle—from a proud legacy to a proud new beginning.

"Rocky Flats is the best example of a nuclear cleanup success story ever… These workers labored tirelessly to clean up and close one of the most dangerous sites in America, demonstrating that the impossible is possible when people cooperate in order to meet a common goal."

– U.S. SENATOR WAYNE ALLARD, OCTOBER 2005

"Today marks the end of an important era in Colorado's history… The workers of Rocky Flats helped protect our country and have now set the standard for DOE nuclear facility cleanups around the country."

– U.S. CONGRESSMAN BOB BEAUPREZ, OCTOBER 2005

"This was very complicated and difficult work involving dangerous and toxic materials. The fact that it was done decades ahead of predictions and at a cost vastly less than expected is a testament to all those involved."

– U.S. REPRESENTATIVE MARK UDALL, OCTOBER 2005

THE ROCKY FLATS JOURNEY HAS COME FULL CIRCLE
—from a proud legacy to a proud new beginning

Kaiser-Hill, LLC is the closure contractor for the United States Department of Energy's Rocky Flats Environmental Technology Site.

Landscape photography by John Fielder. Production and design by GBSM and Rassman Design.